Office 365 Performance Management

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M6: The baselining model for Internet capacity planning

Agenda

- Understand how bandwidth is used
- Changes to traffic patterns
- Other factors influencing bandwidth and performance

Understand how bandwidth is used

Understand how bandwidth is used

Exchange Online

SharePoint Online

Lync Online

Use your pilot to predict new requirements

- Assumes enough time to order upgrades if needed
- Start with at least 20% head room
- Evaluate options to conserve bandwidth

Outlook power user calculation

User Profile 4 (Very Heavy)	
Average Message Size (KB)	50 KB
Messages Sent Per Mailbox Per Day	30
Messages Received Per Mailbox Per Day	120
Avg Mailbox Size (GB)	2.00 GB
Avg Recipients Per Meeting	3
Average Meetings Per Mailbox Per Day	3.0
Web Client/Online Mode Attachment Read %	125%
Mobile Client Attachment Read %	20%
Ensure OST download in 1 Working Day	Yes

User Profile 4 (Very Heavy) [Sent: 30 Recv: 120 AvgMsg: 50 KB]			
Client	kB/Day	kB/s (Peak)	kbps (Peak)
Outlook 2010 (OA-Cached)	8739.5	0.64	5.15

SharePoint Online

Number of users	Concurrent users (10%)	Central solution	Distributed solution
100-5,000	10-500	Bandwidth: 3Mbps (dual T1) Latency: less than 100 ms	Bandwidth: 1.5Mbps (T1) Latency: less than 100 ms
10,000	1,000	Bandwidth: more than 3Mbps (dual T1) Latency: less than 250 ms	Bandwidth: 1.5 Mbps (T1) Latency: less than 250 ms
100,000	10,000	Bandwidth: more than 3Mbps (dual T1)	Bandwidth: 1.5 Mbps (T1) Latency: less than 250 ms

Lync Online

- IM is bursty, latency tolerant, and very small
- Voice uses RTAudio
  - 50kbps low, 80kbps high, autodetermination
- Video depends upon resolution
  - 280kbps low, 4000kbps high, dependent upon resolution
- Desktop sharing depends upon desktop resolution
- Peer-to-Peer versus Client-Server
- Lync Bandwidth Calculator
  - http://www.microsoft.com/en-us/download/details.aspx?id=19011

Other bandwidth uses with Office 365

Migrations

After hours test mailbox migrations to baseline

Bandwidth consumed

Average migration rate

For a migration event, the total bandwidth consumed is X **$X>(MB+MB_1+\ldots MB_x)$**

Will go away at end of migrations

HTTPS, as inbound requests (downloads from the hybrids)

SMTP Traffic

Baseline SMTP in and out at the existing edge

Production will increase

- 2*baseline in + 2*baseline out

During coexistence, between on-premesis and Office 365 will add additional

Administration

Traffic is negligible

- HTTPS traffic
- Latency tolerant
- Bursty and intermittent

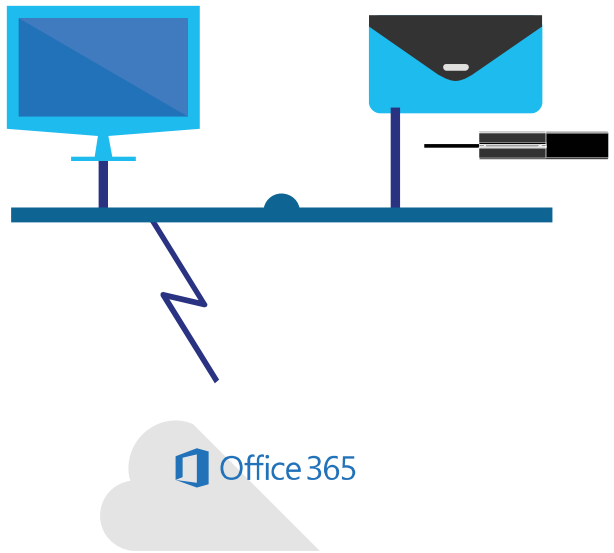
DirSync noticeable only on first run

- HTTPS traffic
- Only deltas after initial sync
- Every 3 hours (+ runtime)
- Variable based on deltas
- More during the day than at night

Changes to traffic patterns

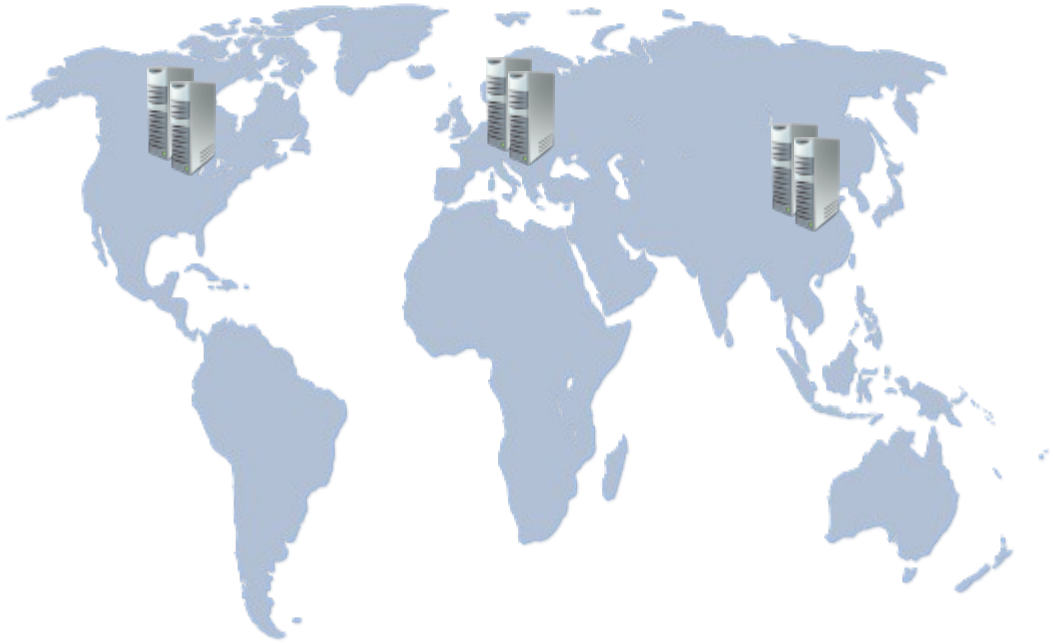
Changes to traffic patterns

- Clients will access Exchange Online instead of on-premises servers
- Internet email to/from may traverse the Internet twice
- Email between O365 and on-premises will traverse the Internet
- HTTPS traffic for SharePoint Online, OneDrive for Business
- Additional Internet traffic for

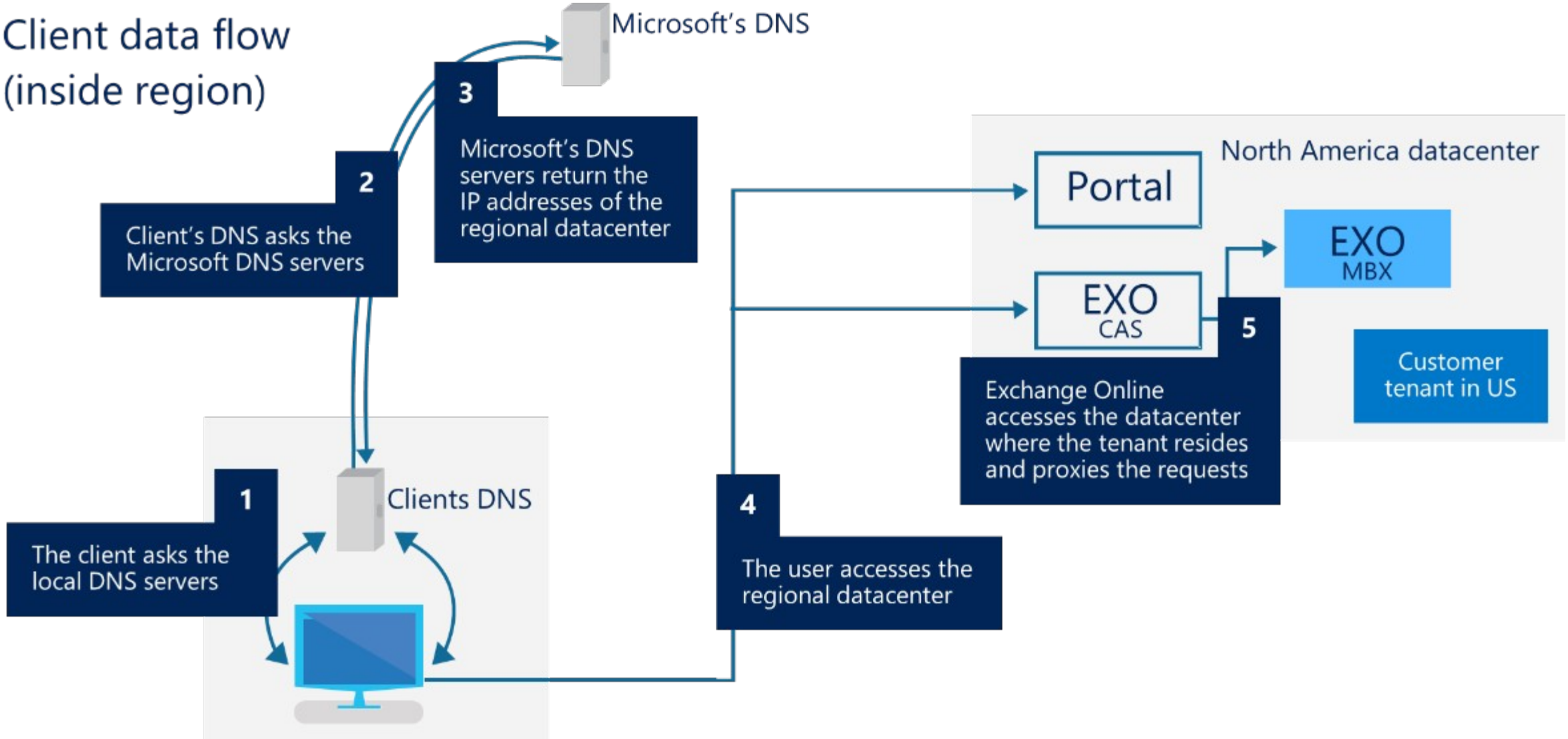


Regionalized approach

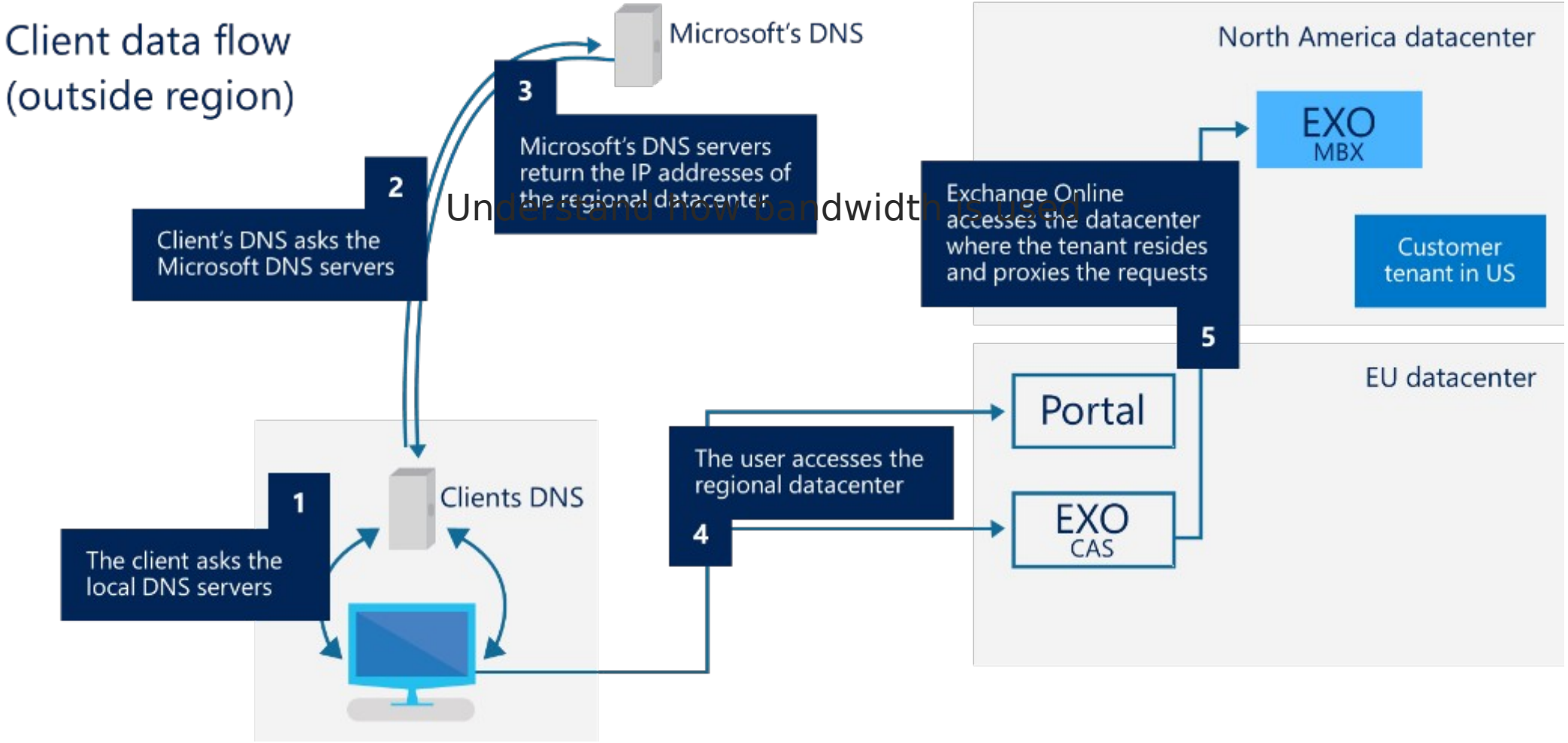
- Office 365 datacenters are in NOAM, APAC, EMEA, and specific countries/regions
- Multiple datacenters in each region
- Customers are hosted in a single region, based on where their agreement is signed
- No customer data is stored across regions
- Access points are globally distributed



Client access from within region



Client access from outside of region



Understand how bandwidth is used

Other factors influencing bandwidth and performance

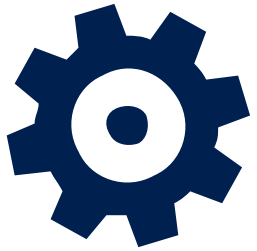
Other factors influencing bandwidth and performance

WAN accelerators

Some customer scenarios have seen improved performance
Never a silver bullet and other measures should be investigated
Required to be disabled for debugging or support

Firewalls

Throughput and NAT
Parsing ACLs
IP Addresses not updated quickly



Proxies

PAC files, authentication, and CONNECT
Are they helping or hurting

Baselining

- Use Netmon on clients to baseline Outlook, Lync
- Use Perfmon on Exchange servers to baseline clients
- Use counters on edge to baseline SMTP

-or-

- Use pilot to validate baselines or establish them
- Use test mailboxes to baseline mailbox migrations

Forecasting bandwidth requirements

- Measure current bandwidth usage with on-premises servers, then figure changes due to Office 365
  - Use Netmon on clients to baseline Outlook, Lync
  - Use Perfmon on Exchange servers to baseline clients
  - Use counters on edge to baseline SMTP

-or-

- Use pilot to validate baselines or establish them
  - Your pilot users will be indicative of velocity
  - Linear growth for clients, bell curve for SMTP
- Use test mailboxes to baseline mailbox migrations

Next steps

- Evaluate remote offices
- Order circuit upgrades or new egress if necessary
- Gather counters from edge
- Use calculators (if you have baselines)
- Test migrations
- Evaluate performance during pilot

M6 Summary: The baselining model for Internet capacity planning

- Understand how bandwidth is used
- Changes to traffic patterns
- Regionalized Approach
- Other factors influencing bandwidth and performance
- Baselining and forecasting
- Next steps

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